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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,572	04/20/2001	Karl Heinz Munzke	40954/DBP	6028

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CHRISTIE, PARKER & HALE, LLP  
350 WEST COLORADO BOULEVARD  
SUITE 500  
PASADENA, CA 91105

EXAMINER

STOCK JR, GORDON J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 01/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/700,572

Applicant(s)

MUNZKE ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The drawing corrections filed on October 20, 2003 have been entered and are acceptable.

#### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “light guide device” of claim 10; “light diffuser device for producing a uniform light flux under object which is arranged behind projecting parts of the object” of claim 12; and “storage and evaluation unit integrated to form a structural unit” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Specification***

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: from claim 13 “the light diffuser device is interrupted in such a way as to permit a view on to the side of the object which is remote from the or all image recording device or devices” lacks antecedent basis; “storage and evaluation unit are integrated to form a structural unit” of claim 14 lacks antecedent basis.
4. On page 6 of disclosure lines 1-4 it is unclear as to how the objective lenses change the image scale of at least one partial image with respect to at least one other partial image. Clarification is required.

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5. The last paragraph of page 3 should be amended to exclude claim references for the claims may change numbering prior to publication.

***Claim Objections***

6. As for **claim 7** it is unclear as to how the lens arrangement means change the imaging scale of at least one partial image with respect to at least one other partial image. Clarification is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1-10 and 12-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 1-4 and 6** are rejected under 35 U.S.C. 102(b) as being anticipated by **Schilling et al. (“High-Precision and Versatile Optical Measurement ... Viewpoint”)** (cited by applicant).

As for **claims 1-4, 6**, Schilling in an inspection system discloses the following: a method for detection and checking of geometrical or textural features of an object in various views using an opto-electronic image recording device as well as storage and evaluation unit for image processing and evaluation, wherein quality or state assessment of the object is effected by a comparison with parameters which are predetermined in respect of the individual features, wherein a plurality of partial images of the object are substantially recorded by means of a number of image-recording devices and beam-deflection means which number is smaller than the plurality of partial images, and at least partially optically assembled at the same time to form an overall image which shows all views and in which the boundaries of the partial images can be recognized, and the overall image is evaluated separately for checking individual features in the boundaries of the partial images, characterized in that the regions of the overall image, which show side views on to the object locations at which the object comes very close to a support surface are ascertained by analysis of the gray value distributions; subsequently the light quantity which passes through between the object and the support surface and which is reflected in the pixels as an intensity value is detected; the local light quantity pattern characterizing the width of a gap between the object and the support surface is determined using intensity values; partial images are assembled optically and recorded by precisely one image-recording device; in the overall image the regions of the partial images are so positioned and identified, using the storage and evaluation unit, an image processing based system, that they can be associated with

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individual views; in that at least one additional step the scene is recorded with a reference object which has predetermined parameters in respect of the features and the corresponding overall image is put in the storage and evaluation unit for comparison and calibration purposes; a predetermined algorithm using calibration information (sections: II. Approach, III. Algorithms, and IV. Results)

***Claim Rejections - 35 USC § 103***

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling et al.** (“**High-Precision and Versatile Optical Measurement ... Viewpoint**”) (cited by applicant) in view of **Suzuki et al.** (5,299,308).

As to **claim 5**, Schilling discloses everything as above (see claim 1). He is silent concerning convolution filters but discloses subpixel measurement algorithm with edge measurements (page 2426, col. 1, paragraph 6; col. 2, paragraph 1). Suzuki in a graphic data processing apparatus teaches using convolution filtering in subpixel edge processing to eliminate high frequency components (col. 5, lines 50-67). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the method include convolution filters to eliminate high frequency components from the subpixel processing.

14. **Claims 1-4 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Beaty et al.** (5,909,285) in view of **Csipkes et al.** (5,729,622) and **Willoughby, Jr. et al.** (5,619,587).

As for **claims 1-4 and 6**, Beaty in a three dimensional inspection system discloses the following: a method for detection and checking of geometrical or textural features of an object

in various views using an opto-electronic image recording device as well as storage and evaluation unit for image processing and evaluation, wherein quality or state assessment of the object is effected by a comparison with parameters which are predetermined in respect of the individual features, wherein a plurality of partial images of the object are substantially recorded by means of a number of image-recording devices and beam-deflection means which number is smaller than the plurality of partial images, and at least partially optically assembled at the same time to form an overall image which shows all views and in which the boundaries of the partial images can be recognized, and the overall image is evaluated separately for checking individual features in the boundaries of the partial images, characterized in that the regions of the overall image, which show side views on to the object locations at which the object comes very close to a support surface are ascertained by analysis of the gray value distributions; subsequently the light quantity which passes through between the object and the support surface and which is reflected in the pixels as an intensity value is detected; the local light quantity pattern characterizing the width of a gap between the object and the support surface is determined using intensity values; partial images are assembled optically and recorded by precisely one image-recording device; in the overall image the regions of the partial images are so positioned and identified, using the storage and evaluation unit that they can be associated with individual views; in that at least one additional step the scene is recorded with a reference object which has predetermined parameters in respect of the features and the corresponding overall image is put in the storage and evaluation unit for comparison and calibration purposes; integrated into the overall image is a representation of the side of the object (Fig. 1a, 1b; cols. 3 and 4; col. 5, lines 20-40; col. 6, lines 25-40; col. 7, lines 35-65; col. 8, lines 1-35).

As for calibrating with an algorithm Beaty is silent, but the equations and calibration procedure of cols. 5-6 suggest an algorithm. Beaty mentions gradient image processing (col. 8, lines 1-35). Csipkes in an inspection system teaches using an algorithm in gradient processing during calibration (col. 21, lines 20-45); Willoughby in a system for measuring thickness teaches using algorithms in defining profiles that are used in calibration (col. 8, lines 55-67; col. 9, lines 1-30). Therefore, it would be obvious to one skilled in the art at the time the invention was made that a predetermined algorithm was used, for gradient processing was performed to provide data concerning the edges of the object.

15. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Beaty et al. (5,909,285)** in view of **Csipkes et al. (5,729,622)** and **Willoughby, Jr. et al. (5,619,587)** in view of **Suzuki et al. (5,299,308)**.

As to **claim 5**, Beaty discloses everything as above (see **claim 1**). He is silent concerning convolution filters. Suzuki in a graphic data processing apparatus teaches using convolution filtering in subpixel edge processing to eliminate high frequency components (col. 5, lines 50-67). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the method include convolution filters to eliminate high frequency components from the subpixel processing.

#### ***Response to Arguments***

16. Applicant's arguments, see Response pages 12-13, filed October 20, 2003, with respect to claims 7-10, 12-14 have been fully considered and are persuasive. The rejection of the claims under 35 U.S.C. 102 has been withdrawn. However, these claims have been rejected under 35 U.S.C. 112 second paragraph (see above).



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As to the response in regards to **claims 1-6** under 35 U.S.C. 103(a) of pages 13-14 filed October 20, 2003, they are not found persuasive because of the following: Beaty teaches or suggests “locations at which the object comes very close to a support surface are ascertained by analysis of gray value distributions” for Beaty suggests that all locations and distances are determined from gray values (col. 8, lines 5-30). “The light quantity which passes through between the object and the support surface and which is reflected in the pixels as an intensity value” suggested from (Figs. 1b, 3a, 3b, 6-8; cols. 4-6); “the local light quantity characterizing the width of the gap between the object and the support surface is determined” through the use of particular edge and distance such as  $D_S$  and  $D_B$  used from col. 4, lines 30-35; col. 5, lines 20-65; col. 6, lines 1-30); and thereby calibration information and algorithm is utilized (col. 5, lines 20-65; col. 6, lines 1-25).

In addition, **claims 1-6** have been rejected under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) with Schilling et al. (“High-Precision and Versatile Optical Measurement ... Viewpoint”) (cited by applicant) and Suzuki et al. (5,299,308). And have been rejected under 35 U.S.C. 112 second paragraph. See above.

***Allowable Subject Matter***

17. **Claims 7-10, and 12-14** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

As to **claim 7**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for automated detection and checking of geometrical and/or textural features means for changing the imaging scale of at least one partial image with respect

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to at least one other partial image, in combination with the rest of the limitations of **claims 7-10, and 12-14.**

***Fax/Telephone Numbers***

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306*

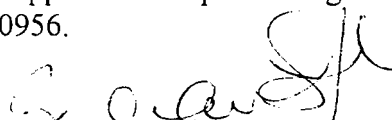
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787. The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gs

December 29, 2003



Zandra V. Smith  
Primary Examiner  
Art Unit 2877